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IN TWO SECTIONS

Section 1

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Distribution Cost Analysis— Methods and Examples

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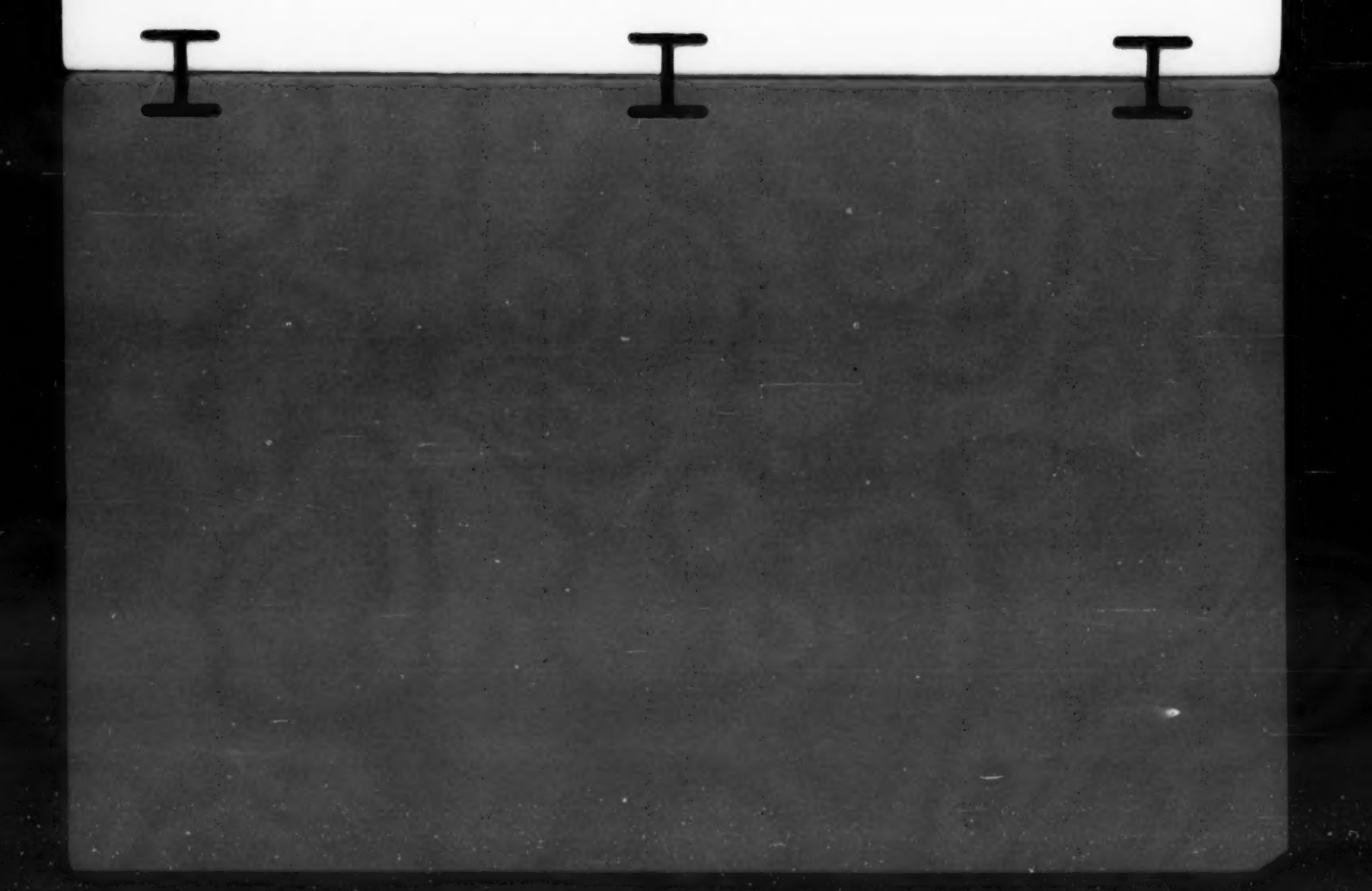

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Distribution Cost Analysis—Methods and Examples

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BIOGRAPHICAL NOTE

There has probably been no subject in the industrial accounting field over the past year that has attracted more wide attention and serious study than the efforts toward more logical methods of cost accounting for distribution activities. The movement toward better distribution cost accounting has been under way for a number of years and a great deal of pioneering work has already been done. Many students of the subject feel, however, that we are, in a large percentage of the cases, still within the pioneering stage. In those industries in which the conclusion has been reached that the distribution problem is the biggest concern, we find the most serious thought and the best methods propounded on this important subject.

Distribution has always been a problem in the meat packing business. Before the advent of the refrigerator car, it was so much of a problem that it stifled the growth of packing companies and in more recent years, this field has been ever fresh with new angles and new questions to be solved.

Mr. Howard C. Greer, the author of our paper this time, has had the necessary broad industrial and public accounting experience, coupled with the quality of analysis developed through research work and teaching to enable him to see a new problem in all of its difficulties and to think through it to a logical conclusion. He is a native of the city of Chicago and is a graduate of one of the major universities located in that city, having taken his A.B. degree from Northwestern University in 1915. While attending some night classes in the same University, he became interested in the subject of accounting and this interest ultimately led him to the procurement of the C.P.A. certificate in Illinois. He is also a C.P.A. of Ohio. Following seven years in industry and public accounting work, he entered the teaching field. He was, for a time, in charge of the accounting research at Ohio State University, and the head of the Accounting Department in that institution. His experience in research work led to his present appointment of Director of Accounting for the Institute of American Meat Packers. Last September he was also appointed to a Research Professorship in Accounting at the University of Chicago.

He is the author of "Chain Store Accounting", "Uniform Accounting for Furniture Dealers", "How to Understand Accounting", and the Editor of "Packing House Accounting." In addition, he has written a number of magazine articles on various phases of accounting and management problems: He is a member of the American Society of Certified Public Accountants, and several other business and professional associations.

This paper was delivered before the Detroit Chapter.

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DISTRIBUTION COST ANALYSIS—METHODS AND EXAMPLES

THE present-day importance of the distribution problem can hardly be overestimated. The most intensive scientific study, the most active public discussion are centered on this feature of our industrial and commercial activity. Business men have come to realize in recent years that many of the gains accomplished through efficient and economical production have been lost through costly and wasteful distribution. The interests of industry and commerce, as well as those of the public, demand more effective and less expensive distribution means and methods.

It is not surprising, therefore, that much attention is being given by cost accountants to the development of a technique for determining distribution costs accurately and presenting them intelligibly. Just as cost accountants rendered invaluable service to manufacturing departments in the era when great advances were being made in production and administration, so today cost accountants are coming forward with invaluable aid to sales managers, market analysts, distribution engineers, and all others engaged in the work of marketing the products of manufacturing enterprises. The techniques necessary for sound distribution accounting work are still new, experimental, and unfamiliar to many, but they are being rapidly developed and will occupy a place of increasing importance for many years to come.

The purpose of this paper is not to cover the field in comprehensive fashion or even to discuss fully the fundamental principles and objectives of distribution cost accounting, but rather to touch on some of the more important features of the work, and to indicate by specific illustrations how the problem has been attacked in several different fields. The material may be considered as intended to supplement and emphasize that contained in numerous discussions of the problem which have already been widely circulated and are doubtless familiar to you. I shall try to point out a few somewhat striking features of distribution cost accounting work and to indicate how certain methods have been applied in specific cases and what results have been obtained in these cases.

Since many of you doubtless habitually think in terms of the

cost accounting methods of the manufacturing enterprise, it may be appropriate to introduce these comments and illustrations by a brief comparison of certain features of the two techniques. Cost accounting for distribution activities is like cost accounting for production activities in some respects, but quite unlike it in certain others. An appreciation of the points of similarity and difference should be helpful in an understanding of the opportunities and methods open to cost accountants in the distribution field.

Probably the first distinguishing characteristic to be noted is the fact that manufacturing cost accounting is done almost exclusively in terms of products, while distribution cost accounting may relate not only to the products but to other classifications into which business activity may be divided. For example, distribution costs may be determined by territories in which product is sold, by methods of sale, by terms of sale, by methods of delivery, by classes of customers, by size of customers, by size of orders, and by many other possible subdivisions. In distribution cost accounting then, we are likely to look at the problem from many different angles, whereas in production cost accounting we confine ourselves largely to the single viewpoint of product cost determination.

This fundamental difference of approach suggests the great value of distribution cost accounting to an enterprise. Cost accounting is intended to serve as a guide to the manufacturer or merchant in his selection among several possible business policies. In manufacturing, the manager often has, in point of fact, very little alternative as to products made or methods of making them, and there is a corresponding limitation on the value of cost accounting data to him. In distribution, however, almost every enterprise has a number of different choices constantly open. The discovery that one method is expensive or unproductive leads promptly to consideration of several possible alternative methods. Many concerns have already altered their distribution methods in accordance with findings reached through cost analysis in this field. Many more will doubtless do likewise in the future.

A second distinguishing characteristic is found in the method of cost allocation. The traditional production cost accounting technique involves the separation of charges as between direct and indirect, and the apportionment of the latter over various jobs

or products on some basis usually connected with the former—such as quantity or value of labor or material, machine operating hours, etc. In distribution cost accounting there is likely to be a lesser proportion of total charges which are strictly "direct" costs (as we use the term in the factory), but, on the other hand, there are also likely to be many more useful bases for apportioning non-direct charges to the commodities, territories, customers, etc., which may be the subject of study.

This leads to the use in the distribution field of a valuable cost accounting device which has been developed only very gradually and incompletely in the production field. I have reference to what might be called the "factor of variability"—the functional unit to which changes in the amount of different types of costs and expenses is related. There are many such factors in every business. Their determination and measurement are important and useful to the cost accountant. The bases used for allocating manufacturing burden are usually in the nature of factors of variability, although roughly and often inaccurately expressed. Many such factors are easily and accurately determinable in the distribution cost field.

By way of illustration of what I mean, let me quote to you one of the first instances of the use of these factors which came to my attention, a good many years ago. A certain street railway company divided all of its operating expenses according to the applicable factors of variability. A group total was determined under each factor and the unit factoral cost was used in estimating the effect on total costs of various possible operating policies.

One factor, for example, was the number of car miles operated; costs of power, car maintenance, and other similar items varied with this factor. Another factor was the number of revenue passengers carried; costs of tokens, tickets, and transfers varied with this factor. Another was car hours; wages of platform men varied with this factor. Another was the number of miles of track operated; costs of maintenance of right of way, power lines, etc., were believed to vary with this factor. It will be readily seen how promptly and satisfactorily the cost of operating any given division of the system could be computed; also how easily we could estimate the effect on costs which would result from increasing or reducing the number of miles of track operated, the number

of car miles or car hours operated, the number of revenue passengers carried, etc.

The third important element of comparison involves similarity rather than a distinction between production and distribution cost accounting. In both fields, attention of the cost accountant should be concentrated first on the function performed in each section and subdivision of the business. We have been working around gradually to a functional analysis of cost in the factory. We have made very little progress as yet in most concerns toward a functional analysis of distribution activities. We must know costs by functions and factors if we are to make accurate and useful cost allocations.

The work of the cost accountant along this line is commonly hampered by the disposition of the bookkeeper to classify his expenses in the simplest and most obvious way—namely, according to "object of expenditure." Salaries are simply salaries to the bookkeeper, supplies are supplies, and maintenance is maintenance. It is much more difficult to effect a bookkeeping classification which involves a combination of the salaries, supplies, and maintenance incident to operating the shipping department, and combining in another group the same items incident to the operation of the credit department. Yet these are separate functions and their costs must be known individually.

One of the first tasks of the cost accountant in the distribution field is to obtain a clear picture of what functions are being performed in marketing the product. When he has established what these functions are, he must provide the necessary accounting classifications to break down expenses into the proper functional divisions. He must not be confused by the inherent disposition to group a large number of unrelated activities under the general heading of "administrative" and to assume that these costs cannot be allocated except on some arbitrary basis. In the completely developed accounting system, there should be no left-over items to be dealt with arbitrarily. Each cost is connected with some function, and it is the cost accountant's responsibility to determine what that function is and how much per factoral unit it costs to perform it.

In the light of the above comments, we may perhaps conclude

that distribution cost analysis involves a number of successive steps to be taken in substantially the following order:

(1) Determination of what is to be costed—that is, whether we are interested in a cost analysis by products, by territories, by class of customers, or on some other basis.

(2) Analysis of all distribution expense according to functions performed.

(3) Determination of the functional factor of variability—that is, the unit of measurement of functional service according to which costs may be expected to vary.

(4) Development of a unit cost for each such functional factor determined.

(5) Measurement of the number of functional units required in the distribution of the product for the territory, etc.

(6) Application of the cost to products, territories, or whatever, in accordance with the information gained through the above procedure.

The steps outlined above will be seen to carry us only through the stage of historical cost determination. On completion of this analysis, there will remain before us, of course, the important task of developing standards for these costs and the further task of making these standards effective. That the present discussion is confined to the technique of cost determination should not suggest that the technique is to be considered as anything other than a preliminary to the essential task of making the information useful to the company in the establishment of policies and the exercise of control over operations.

With this rather sketchy background of general principle established, let us turn now to a few specific illustrations of cost analysis in the terms outlined. These illustrations are contained in four brief tables to which I shall ask your attention one by one. All of them are drawn from the wholesale field. Since many of you are representatives of manufacturing concerns, I should have preferred to use illustrations closer to your own business, but I assume that you are already familiar with the best of the published material in this field, because it appears in the bulletins issued from time to time by the National Association of Cost Accountants. There have been particularly fine discussions by Mr. Freeman of the Dennison Manufacturing Company, Mr. Lovell of the Norton

TABLE I

ANALYSIS OF DISTRIBUTION EXPENSES BY TERRITORIES

Method of Allocating Costs

Expense Classification	*Amount*	*Factor for Expense Allocation*
Salesmen's Salaries	$ 2,800	Actual by routes
Salesmen's Expenses	2,000	Actual by routes
Packing, Loading & Shipping Expense	1,600	Cost per cwt. sold, developed by time study for each sales territory
Boxes, Barrels, etc.	600	Cost per cwt. sold, developed by box cost analysis on each territory
Garage & Truck Expense	1,700	Cost per truck hour times no. hours on each route
Drivers' Salaries	800	Cost per driver hour, on each route
Freight & Drayage	1,400	Actual by routes
Sales Supervision	1,100	All routes bear equal shares
Credit Department	600	Cost per customer times no. customers
Traffic Department	300	Cost per freight shipment times no. shipments
Accounting Department (expense broken down by functions)	1,800	Cost per item billed, per invoice rendered, per statement mailed, etc., times appropriate factors

Results by Classes of Territory in Dollars per Cwt. Sold

Classes of Sales	Margin	Expense	Profit
All Combined	$2.64	$2.46	$ .18
City Jobber	3.97	3.74	.23
City Retailer	2.80	2.47	.33
Country Motor	2.45	2.00	.45
Country Freight (Salesmen)	2.88	3.83	.95*
Country Freight (Agents)	2.46	3.47	1.01*
Car Lot and Misc.	1.60	.72	.88

Results by Routes in Country Motor Territory

Route No. 1	$2.06	$2.00	$ .06
" " 2	2.94	1.76	1.18
" " 3	3.10	2.16	.94
" " 4	2.36	2.30	.06
" " 5	2.32	2.12	.20
" " 6	1.63	2.02	.39*
" " 7	1.76	2.18	.42*
" " 8	2.20	2.06	.14

* Loss

(Figures from a bulletin of the Institute of American Meat Packers by Howard C. Greer.)

Company, Mr. Barrett of the Kellogg Company, and Mr. Frost of the Wahl Company. All of these will repay the most careful reading by anyone interested in the subject.

The first illustration I have to present to you (shown in Table I) is a distribution cost analysis by territories and by classes of trade. The figures were obtained from a study of the accounts of a meat packing company of moderate size, located in one of the large cities of the country. It is not suggested that these figures are representative of the results obtained by meat packers in general; the tabulation may be considered as merely illustrative of the method of analysis followed and the type of results which may be obtained by such analysis.

This meat packer distributes his goods to six classes of trade, designated respectively as (1) city jobber, (2) city retailer, (3) country motor, (4) country freight—salesmen, (5) country freight—agents, (6) car lot and miscellaneous. Up to the time of our analysis he had never attempted to determine distribution costs according to these classes of trade. The general assumption of the company was that while some classes of trade cost more to sell than others, proportionately higher gross margins were obtained on these classes of business.

Our first step was to break down the distribution expense according to functions, as indicated in the upper half of Table I. The amounts represent the approximate expenditures for one month, but they are of no great importance in the illustration. It may be noted that it was necessary in this analysis to regroup the items appearing on the books of the company, which were not laid out to show expense totals according to functions. It was also necessary to include certain items (such as accounting, traffic, and credit department expense) which the company showed as part of its administrative rather than its selling expenses.

The second step in the procedure was to determine the proper units of functional service to be used in allocating the costs. These are indicated in the upper right hand section of the table. I need not stop to indicate why each particular unit was selected; most of them obviously justify themselves, and in the other cases there was invariably some compelling reason for the choice of the unit used.

The significant fact is that we were able to allocate almost every

item of expense on some basis bearing a reasonable relation to the actual service rendered. You will note that the item of "sales supervision" alone is distributed on anything approaching an arbitrary basis. This expense makes up less than 10% of the total outlay. Over 90% of the expenses, then, were distributed according to some definite service factor.

A high percentage of directly charged expenses is essential if the results are to have meaning. As soon as we are forced to resort to arbitrary apportionments for any considerable share of the total expense, we get on to very dangerous ground. The success of the job depends, in my opinion, on the extent to which actual factors of variability can be utilized in distributing the charges.

Let us glance for just a moment at the results shown by the analysis in this particular company (lower half of Table I). Note that while average expense per hundredweight of product sold was $2.46 for all classes of territory, it runs from $3.50 to $4.00 in the city jobber and country freight territories. In the first named, the gross margin realized is sufficient to cover the expense and leave a small profit. But in the two freight classifications the gross margin falls short by almost $1.00 per hundredweight of equaling the expense incurred. These two territories, then, are an obvious drag on the business, and are responsible for the meager profit showing of all territories combined.

Note also the results indicated by the car lot business. Because of the low margins obtained, the company had always considered this class of trade to be unprofitable. Careful expense allocation proved that, contrary to this opinion, it is the most profitable type of business handled by the company.

Realizing that, just as all classes of trade are not alike, neither are subdivisions within a given class of trade necessarily similar in their showing, we decided to make a further analysis by routes in the country motor territory. The result is shown in the lower portion of Table I. Here again there are astonishing variations between the results of the different subdivisions. Routes 2 and 3 have high margins and low expenses and contribute very substantial profits. Routes 6 and 7 have low margins and high expenses and contribute losses. In point of fact, we found when the profits were allocated properly that route 2 alone produced

TABLE II

ANALYSIS OF DISTRIBUTION EXPENSE BY CUSTOMERS ACCORDING TO ORDER AND ACCOUNT SIZE

Method of Allocating Costs

Function	*Factor for Expense Allocation*	*Expense per Unit*
Order Taking		
Personal Calls	No. of personal calls	97.5¢ per call
Phone Solicitation	No. of phone calls	23.8¢ per call
Packing & Shiping		
Boxes & Packing	Actual according to cost of box used	.....
Loading in Cars	Cwt. loaded	4.3¢ per cwt.
Delivery		
Freight	Actual by orders	.....
Drayage	Actual by orders	.....
Sales Bookkeeping		
Billing & Analysis	No. of items	3.0¢ per item
Posting, etc.	No. of sales invoices	12.0¢ per invoice
Credits & Collections		
Personal Calls	No. of calls	10.8¢ per call
Statements & Office	No. of customers' acc'ts.	17.7¢ per acc't
Bad Debts	Percent of sales (on sliding scale)	From 2% to 0.1%
General Overhead	No. of cwt. sold	8.7¢ per cwt.

Costs by Orders According to Size

Size of Order	*Total Cost*	*Cost per lb.*
Less than 25 lbs.	$2.11	$ .14
25 to 50 lbs.	2.31	.06
50 to 100 lbs.	2.72	.03-¾
100 to 200 lbs.	3.51	.02-¼
200 to 500 lbs.	5.41	.01-½
500 to 1000 lbs.	7.31	.01-¼

Results per $100 of Sales by Accounts According to Size

Size of Account (Monthly Purchases)	*Margin*	*Expense*	*Profit*
Less than $25	$10.91	$43.36	$32.45*
$25 to $50	10.70	21.14	10.44*
$50 to $100	9.85	14.02	4.17*
$100 to $200	10.40	10.21	.19
$200 to $500	9.87	7.85	2.02
$500 to $1000	8.15	6.04	2.11
More than $1000	9.20	6.13	3.07
All Combined	9.64	8.76	.88

* Loss

(Figures from a bulletin of the Institute of American Meat Packers by Howard C. Greer.)

more profit than the entire eight country motor routes taken together. In other words, the losses on routes 6 and 7 more than offset the profits realized on routes 1, 3, 4, 5, and 8.

Let me say again that these figures are illustrative rather than representative. About the only thing certain is that any concern making an analysis of this type for the first time will find some astonishing situations in the various territories, sub-territories, and classes of trade.

The second illustration which I have to offer (shown in Table II) involves an analysis of expenses by customers according to the size of their orders and accounts. Another meat packing company was the subject of this study, the business analyzed being that secured from five so-called "car routes"—that is, territories covered by a refrigerator car making numerous stops for partial unloading, orders having been previously taken by the route salesmen. As in the previous illustration, the upper half of the table indicates the functional analysis of expense, the factor according to which expenses were allocated, and (as an additional item this time) the expense per functional unit.

Each order handled by the car routes under review was costed separately. It was therefore necessary to determine the number of units of functional service connected with each order and each account. A few items like freight and drayage were allocated directly to individual orders; almost all of the other items could be allocated on the basis of some definite factor. Some study was required to work out the factors in certain cases; rough time studies, for example, were necessary to find the cost of packing boxes of various sizes and types, of loading product into cars, etc. It should be noted that in this study also there was very little expense (only about 15% of the total) left for distribution on an arbitrary basis. General overhead items not assignable to any specific function were applied at so much per hundredweight of product.

The lower half of the table is again an illustration of the results obtained. The disproportionate cost of handling small orders and small accounts is particularly striking. As against an average cost of distribution (for the entire five routes) of something under two cents per pound, orders of less than 25 pounds were found to cost 14¢ per pound to distribute. Even orders between 25 and 50

TABLE III

ANALYSIS OF DISTRIBUTION EXPENSES BY COMMODITIES
Method of Allocating Costs

Function	*Factor for Expense Allocation*	*Expense per Unit*
Handling (receiving & shipping labor, supplies, use of equipment, etc.)	Weight volume handled	11⅔¢ per cwt.
Storing (rent and maintenance of buildings & fixtures)	Bulk of goods stored	15¢ per cu. ft.
Finance (taxes, insurance and interest on investment)	Value of goods stored	$6.25 per $100 of inventory
Delivery (truck and garage expense, drivers' wages, etc.)..	Weight volume delivered	8⅓¢ per cwt.
Office (clerical labor, supplies, postage, telephone, etc.)	No. of items	9⅓¢ per item
Selling & Administration (Sales salaries and expense, executive supervision, etc.)	Dollar volume of sales	4.5% of sales

Illustration of Costing by Commodities

Factors per $100 of Sales	*Avge. Commod.*	*Tobacco*	*Sugar*	*Canned Fruit*
Weight in lbs.	1200	50	1667	1042
Bulk in cu. ft.	4.0	0.2	1.0	18.0
Invty. Value in dollars.	$16.00	$ 8.56	$ 3.44	$68.57
No. items	16.1	10.0	8.3	25.1
Expense per $100 of Sales				
Handling	$ 1.40	$ .06	$ 1.95	$ 1.22
Storing	.60	.03	.15	2.70
Financing	1.00	.54	.22	4.29
Delivery	1.00	.05	1.39	.87
Office	1.50	.93	.77	2.33
Selling & Administration	4.50	4.50	4.50	4.50
Total	$10.00	$ 6.11	$ 8.98	$15.91

(Figures adapted from "The Wholesale Grocers' Problems"—by J. W. Millard, U. S. Dept. of Commerce.)

pounds cost over three times the average—and there were a great many such orders.

The cost of handling each customer's account was also calculated and some widely varying costs were discovered. Customers whose purchases amounted to less than $25.00 per month were responsible for selling expenses approximately five times the average. While the gross margin per $100 of sales realized from these small customers was approximately $1.27 above the average, the expense of serving them was $34.60 above the average. When consideration is given to the effect of the narrow average margins realized by this and most meat packing companies, it is perfectly obvious that accounts of this class can yield no profit. The lower portion of the table shows that accounts of less than $100 per month produce substantial losses to the business, operating so as almost to wipe out the moderate profits secured from a business of larger customers.

The third illustration indicates the method which may be followed in analyzing distribution expense according to products or commodities sold. The figures in this illustration (shown in Table III) have been taken from a bulletin of the U. S. Department of Commerce and relate to the operations of a wholesale grocery company. The functional expense analysis, the factor of variability, and the unit functional expense are again shown in the upper half of the table. It should be noted that the grouping of expenses is somewhat different from the one indicated in the earlier illustrations, owing to the different type of costing required when commodities instead of territories or customers are the basis of study.

The lower portion of Table III indicates the results found by applying the unit cost determined to three typical commodities. Note particularly the variations from the average in functional service requirements of the three commodities selected.

One hundred dollars' worth of sugar, for example, represents over thirty times as much weight and five times as much bulk as one hundred dollars' worth of tobacco, yet because of the more rapid turnover it involves a dollar inventory investment of only half as much. The higher cost of distributing canned fruit as compared with such commodities as tobacco and sugar may be anticipated when its functional service requirements are

examined. One hundred dollars' worth of this commodity represents less than the average weight in pounds, but four and one-half times the average bulk and over four times the average dollar inventory value. It requires, moreover, twenty-five items of canned fruit to make up one hundred dollars' worth of sales, against an average of sixteen items for all commodities and only eight or ten items on such commodities as sugar and tobacco.

The totals at the foot of the table give the comparative cost of distributing these three commodities, and also the average commodity handled by this wholesaler. The tobacco distributing cost is only a little over one-half the average; sugar falls just slightly below the average, while canned fruit is nearly 60% above the average. This information is obviously of inestimable value to wholesale grocers attempting to set gross profit margins intelligently on the various commodities handled.

It seems to me that there is only one weakness in this analysis, namely, that too large a portion of the total expense is distributed on a somewhat arbitrary basis. The expense of sales salaries and salesmen's travel, executive supervision, advertising, etc., amounts to nearly half the total cost, and it is apportioned simply on the basis of the number of dollars of sales. It is very difficult—if not impossible—to arrive at any better basis for making this distribution when costing by commodities is attempted. The papers prepared by Mr. Freeman and Mr. Barrett (previously referred to in this talk) attack this subject vigorously, and represent what seems to me the best discussion of the possibilities in this connection which I have seen so far. In the case of a wholesaler handling a general line the problem is, however, almost, if not entirely, insoluble. I point out the difficulty in this connection not by way of criticism of Mr. Millard's analysis, but rather to indicate the inherent difficulty of the problem.

The fourth and final illustration is included here (Table IV), not because it indicates a method differing particularly from those already explained, but because it brings out in a striking manner one particular problem which confronts all wholesalers and many manufacturers. The material presented comes from a study made by the National Wholesale Druggists' Association, and has been prepared to indicate the enormous burden carried by a wholesaler

TABLE IV

ANALYSIS OF DISTRIBUTION EXPENSE BY TYPES OF ORDER

Method of Allocating Costs

Buying, receiving, storing, shipping and general.....	per $100 of sales
Selling, delivery, billing, etc.....	per item
Handling (breaking bulk)	per unit of sale (none on full cases)

Illustration of Costs and Profits for Various Units of Sale (i.e. Orders of Various Sizes)

	Expense in Percent of Sale Price				
Function	*Full Case*	*One Doz.*	*½ Doz.*	*1/6 Doz.*	*1/12 Doz.*
Buying, receiving, storing & shipping	3.24%	3.24%	3.24%	3.24%	3.24%
Handling (breaking bulk).....	...	2.48	4.96	14.88	29.76
Selling	.71	2.14	4.28	12.84	25.68
Delivery (city)	.14	.42	.84	2.52	5.04
Pricing, billing, etc.....	.21	.62	1.24	3.72	7.44
Executive and general.....	3.63	3.63	3.63	3.63	3.63
	7.93	12.53	18.19	40.83	74.79
For an article selling at $2.00 per doz. with gross margin of 20%, result on each transaction would be as follows:					
Margin	1.20	.40	.20	.07	.03
Expense	.48	.25	.18	.14	.12
Profit or *Loss.....	.72	.15	.02	.07*	.09*

(Figures adapted from a bulletin of the National Wholesale Druggists' Association, as quoted in "Domestic Commerce".)

who attempts to sell goods in broken packages at no advance over the quoted price for full case lots.

The functional analysis of expenses is very simple, the most important element being the special treatment given to "commodity handling" in the warehouse, which consists entirely of the cost of breaking bulk and separately packing the numerous small lots so familiar to every wholesaler. In the lower half of the table, the expenses are all stated in the percentage of the sale price. Many items are (for convenience and economy of effort) treated as proportionate to sales. Selling, pricing, billing, and delivering are recognized as being practically the same for each item sold, while special recognition is given to the cost of breaking bulk as above noted.

It will be observed that the expense of distribution rises from 8% of sales on a full case order to 75% of sales on an order for a single item (1/12 of a dozen or 1/36 of a full case). If it be assumed that the same price per item is charged throughout, with a resulting uniform gross margin, the results of a transaction vary all the way from a substantial profit on full case business down to definite losses on orders for less than one-half dozen. The same general situation may be found to exist in practically every wholesaling business, presenting perhaps the most serious single problem with which this class of merchant has to contend at the present time.

There is a great and increasing amount of illustrative material along these lines now being published from many sources. The National Association of Cost Accountants, the American Management Association, and the United States Department of Commerce have all taken an active part in analyzing the problem in many fields. Numerous trade associations are studying the subject, and have published many exceedingly interesting bulletins on their findings. Individual companies are now giving serious thought to problems presented and are also contributing to the growing literature on the subject, from which I have merely selected a few informative samples.

By way of conclusion, let me point out once more that the task of the cost accountant does not stop when a determination of distribution costs has been made. In fact, if he has a proper conception of his job, he realizes that his work has only begun when

he reaches that point. A world of analyses are of no value unless they are put into practical use by the managing executives of the concern. While the cost accountant himself in many instances cannot properly be termed a managing executive, he does, it seems to me, have at least three very definite responsibilities in connection with work of this type.

First, he should take the lead in suggesting to the management what sort of analyses are required, and, when approval has been obtained, should direct the making of these analyses and the presentation of the results in intelligible form to the management.

Second, he should co-operate with the executives who direct the distribution activities of the company in the development of standards of distribution expense, as well as standards of volume and gross margins generally.

Third, he should make himself responsible for controlling actual results, through application of the standards and through prompt and informative comparisons of estimated and actual results for each period.

In the satisfactory accomplishment of these tasks as related to the field of distribution, cost accountants can render to industry and commerce one of the services of which it stands most in need at the present time.

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